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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/589,675	06/07/2000	Steven C. Murray	PA1513US	8651

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EXAMINER

FARAH, AHMED M

ART UNIT PAPER NUMBER

3739

DATE MAILED: 02/11/2004

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/589,675

Applicant(s)

MURRAY ET AL.

Examiner

Ahmed M Farah

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2A

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE ____ MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-33 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 17-21 is/are allowed.
- 6) ☒ Claim(s) 1-5,9,12-14 and 22-33 is/are rejected.
- 7) ☒ Claim(s) 6-8,15 and 16 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

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DETAILED ACTION

Claim Objections

1. Claim 15 is objected to because of the following informalities: the phrase "contracting the target" in line 3 is believed to be a typographical error. For the purpose of examination, this phrase is treated as --contacting the target--. Appropriate correction is required.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-5, 9, 11-14, 22-27 and 33 are rejected under 35 U.S.C. 102(b) as being anticipated by Kosa U.S. Patent No. 4,695,697.

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As to claims 1, 9, 22, and 26, Kosa discloses a laser delivery system for irradiating tissue (see column 6, lines 45-54), the system comprising:

a fluorescent element 20 positioned to receive a pump radiation having a narrow spectral band (see Fig. 1) and responsively generate radiation by spontaneous emission, the spontaneously emitted radiation being diffuse (see Figs. 2-8) and having a peak emission outside the pump radiation (see column 4, lines 37-45); wherein the fluorescent element is adapted to deliver at least a portion of the diffuse emitted radiation toward a tissue target.

As to claims 2-5, the fluorescent material includes fluorescent ions and is selected from a group consisting of a solid-state crystal and glass (see column 6, lines 55-66).

As to claim 11, the pump radiation is generated by an Nd:YAG laser. Neodymium YAG lasers are commonly operated at the principle, 2nd harmonic generation (frequency-doubled), 3rd harmonic generation, etc.

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As to claims 12 and 23, the pump radiation is delivered to the fluorescent element through an optical fiber 20 as presently claimed.

As to claims 14 and 25, the optical fiber 20 comprises a reflective coating 33 (conventional fiber cladding film) that is transparent to the pump radiation to reflect/direct the emitted radiation toward the target tissue as presently claimed.

As to claim 27, Kosa teaches that his apparatus has general utility for various system employing laser beam energy. He further teaches that the tip assembly is adapted for use in combination with laser devices for a variety of medical procedures such as angioplasty, arteriosclerosis, etc. (see column 4, line 45 to column 5, line 2).

As to claims 24-26 and 33, a portion of the spontaneously emitted radiation from the fluorescent element is reflected back to the optical fiber. The boundary between the optical fiber core and cladding material in turn reflects at least a portion of said reflected radiation back

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As to claims 12 and 23, the pump radiation is delivered to the fluorescent element through an optical fiber 20 as presently claimed.

As to claims 14 and 25, the optical fiber 20 comprises a reflective coating 33 (conventional fiber cladding film) that is transparent to the pump radiation to reflect/direct the emitted radiation toward the target tissue as presently claimed.

As to claim 27, Kosa teaches that his apparatus has general utility for various system employing laser beam energy. He further teaches that the tip assembly is adapted for use in combination with laser devices for a variety of medical procedures such as angioplasty, arteriosclerosis, etc. (see column 4, line 45 to column 5, line 2).

As to claims 24-26 and 33, a portion of the spontaneously emitted radiation from the fluorescent element is reflected back to the optical fiber. The boundary between the optical fiber core and cladding material in turn reflects at least a portion of said reflected radiation back

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to the target tissue. Hence the delivery system of Kosa provides the claimed limitation.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 28-32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kosa in view of Anderson et al. U.S. Patent No. 5,735,844.

Although Kosa teaches that his apparatus is used for variety of medical procedures (see column 4, line 45 to column 5, line 2), he does not particularly teach it is used for treating tumor, pigmented lesion, or removing hair. He further fails to teach that the target tissue is cooled.

Anderson et al. teach a medical treatment device comprising: an Nd:YAG laser (see column 9, line 6) for

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generating a treatment energy; an optical fiber adapted to deliver the treatment/laser energy to a delivery tip (see Fig. 2A), the delivery tip comprising a cooling unit and a tissue contact tip 46 for simultaneously directing the treatment energy to the target tissue and cooling the tissues being treated.

Therefore, it would have been obvious to one skilled in the art at the time of the applicant's invention to modify Kosa in view of Anderson et al to cool the tissue during treatment so as to avoid undesired injury/heating of the tissue and/or to reduce discomfort to the patient. It would have further obvious to use the device for treating tumors, pigmented lesions, and/or hair removal.

Allowable Subject Matter

6. Claims 17-21 are allowed. The prior art of record do not teach or suggest a device for irradiating tissue as presently claimed, the device comprising a redirector for redirecting at least a portion of the diffuse, spontaneously emitted radiation toward a target tissue, wherein the redirector comprises a waveguide including a reflective

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entrance face and reflective walls, the entrance face having a substantially transmissive aperture formed therein for admitting pump radiation into the waveguide.

7. Claims 6-8, 10, 15, and 16 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. See the following references:

U.S. Patent No. 4,994,059 to Kosa et al. and U.S. Patent No. 5,928,222 to Kleinerman disclose devices for irradiating tissue, the devices comprising: a laser source for generating treatment energy; at least one optical fiber for transmitting the optical/treatment energy; and a fluorescent element at tip of the treatment device for irradiating the tissue, respectively.

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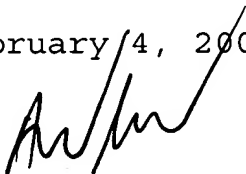
U.S. Patent No. 5,415,655 to Fuller et al; U.S. Patent No. 4,273,109 to Enderby; and U.S. Patent No. 4,336,809 to Clark disclose various tissue irradiating devices comprising laser sources, optical fibers, and energy delivery tips for irradiating the tissue.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to A. Farah whose telephone number is (703) 305-5787. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Linda Dvorak, can be reached on (703) 308-0994. The official fax number for the group is (703) 872-9302; the fax number for After Final is (703) 872-9303; and the Examiner's Desk-top fax is (703) 746-3368.

A. M. Farah

Patent Examiner (Art Unit 3739)

February 4, 2004.

A handwritten signature in black ink, appearing to be 'A. M. Farah', written over the date line.